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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/574,448	05/19/2000	Wen Hsuan Hsieh	06618-447001	8627

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EXAMINER	
HARVEY, DIONNE	

ART UNIT	PAPER NUMBER
2643	12

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/574,448	HSIEH ET AL.	
	Examiner	Art Unit	
	Dionne N Harvey	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *24-54* is/are pending in the application.

4a) Of the above claim(s) *1-23 and 55-74* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *24-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *19 May 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6,7*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 24-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Sprenkels (US 4,910,840).

Regarding claim 24, In figure 2, Sprenkels teaches an electret transducer, comprising: a diaphragm including an IC-compatible membrane support structure (9) and a polymeric membrane layer (membrane foil - 2 is constructed from Mylar film; see column 8, line 27) formed on the membrane support by micro-machining techniques, the transducer diaphragm having a first electrode (1); a backplate (5) having a second electrode (in column 5, line 45, Sprenkles teaches that the motor portion of the backplate will comprise a bottom electrode) and formed by micro-machining techniques; an electret layer (4) formed on at least one of the diaphragm or backplate, the diaphragm being positioned adjacent to the backplate to form an electret transducer. In column 2, line 35-37 and column 6, lines 21-29, Sprenkles specifically teaches micro-machining techniques.

Regarding claim 25, Sprenkles teaches that the polymeric membrane layer includes one of Mylar, FEP, PTFE fluoropolymer, Teflon, polyimide, a silicone, or parylene.

Regarding claim 26, Sprenkles teaches that the polymeric layer has a thickness in the range from *about* 0.1 microm to *about* 10 microm, as broadly claimed.

Regarding claim 27, Sprenkles teaches that the polymeric membrane layer is spun or deposited onto the membrane support using micro-machining techniques.

Regarding claim 28, in column 6, lines 35-37, Sprenkles teaches that the membrane support structure (9), which is a part of the larger backplate structure, is formed from an electrically insulating or semi-conducting glass, ceramic, crystalline, or polycrystalline.

Regarding claim 29, Though Sprenkles teaches the use of glue for adhering the polymeric membrane layer to the edge portions of the backplate, Sprenkles teaches that the polymeric membrane layer adheres to the membrane support structure (9) without gluing (see figures).

Regarding claim 30, Sprenkles teaches that the backplate comprises a backplate support structure (7) defining a back volume (6) and a backplate membrane layer (5) formed on the backplate support structure; the backplate membrane layer (5) having a front (see surface side defined by recessed portion – 3) and a rear face (see surface side which lies directly adjacent air gap – 6), the backplate membrane layer (5) comprising a plurality of cavities (8,11) extending from the front face to the rear face,

thereby providing for communication between the front face (3) and the back volume (6).

Regarding claim 31, shown in figure 6 and In column 6, lines 38-40, Sprenkles teaches a polymeric reinforcing film (14) formed on the backplate.

Regarding claim 32, Sprenkles teaches that the film is SiO2 and therefore teaches one of Mylar, FEP, PTFE fluoropolymer, Teflon, polyimide, a silicone, or parylene.

Regarding claim 33, Sprenkles teaches that the polymeric reinforcing layer is *about* 2.51 microm thick, as broadly claimed.

Regarding claim 34, Sprenkles teaches that the polymeric membrane layer is spun or deposited onto the membrane support using micro-machining techniques.

Regarding claim 35, in column 6, lines 35-37, Sprenkles teaches that the membrane support structure, which is a part of the larger backplate structure, is formed from an electrically insulating or semi-conducting glass, ceramic, crystalline, or polycrystalline.

Regarding claim 36, in figure 4, The Examiner has interpreted element 14, which is disposed above membrane support (9) as providing at least one spacer.

Regarding claim 37, in figure 1, Sprenkles teaches that the plurality of cavities (8,11) comprises an array of *about* 25,000 holes extending through out the backplate member, as broadly claimed.

Regarding claim 38, Sprenkles teaches that the membrane has a diameter of *about* 8 millimeters, as broadly claimed.

Regarding claim 39, in column 7, lines 1-2, Sprenkles teaches that the air gap is *about* 4.5 microm deep, as broadly claimed.

Regarding claim 40, In figure 2, Sprenkels teaches an electret transducer, comprising: a diaphragm including a membrane support structure (9) and a membrane layer formed on the membrane support by micro-machining techniques, the transducer diaphragm having a first electrode (1); a backplate having a second electrode (in column 5, line 45, Sprenkles teaches that the motor portion of the backplate will comprise a bottom electrode) and formed by micro-machining techniques; the backplate comprising a backplate support structure (7) defining a back volume (6) and a backplate membrane layer (5) formed on the backplate support structure; the backplate membrane layer (5) having a front (see surface side defined by recessed portion – 3) and a rear face (see surface side defined by air gap – 6), the backplate membrane layer (5) comprising a plurality of cavities (8,11) extending from the front face to the rear face, thereby providing for communication between the front face (3) and the back volume (6); an electret layer (4) formed on at least one of the diaphragm or backplate, the diaphragm being positioned adjacent to the backplate to form an electret transducer. In column 2, line 35-37 and column 6, lines 21-29, Sprenkles specifically teaches micro-macining techniques.

Regarding claim 41, shown in figure 6, In column 6, lines 38-40, Sprenkles teaches a polymeric reinforcing film (14) formed on the backplate.

Regarding claim 42, Sprenkles teaches that the film is SiO_2 and therefore teaches one of Mylar, FEP, PTFE fluoropolymer, Teflon, polyimide, a silicone, or parylene.

Regarding claim 43, Sprenkles teaches that the polymeric reinforcing layer is *about* 2.51 microm thick, as broadly claimed.

Regarding claim 44, Sprenkles teaches that the polymeric membrane layer is spun or deposited onto the membrane support using micro-machining techniques.

Regarding claim 45, in column 6, lines 35-37, Sprenkles teaches that the membrane support structure, which is a part of the larger backplate structure, is formed from an electrically insulating or semi-conducting glass, ceramic, crystalline, or polycrystalline.

Regarding claim 46, in figure 4, The Examiner has interpreted element 14, which is disposed above membrane support (9) as providing at least one spacer.

Regarding claim 47, in figure 1, Sprenkles teaches that the plurality of cavities (8,11) comprises an array of *about* 25,000 holes extending through out the backplate member, as broadly claimed.

Regarding claim 48, Sprenkles teaches that the membrane has a diameter of *about* 8 millimeters, as broadly claimed.

Regarding claim 49, in column 7, lines 1-2, Sprenkles teaches that the air gap is *about* 4.5 microm deep, as broadly claimed.

Regarding claim 50, Sprenkles teaches an open-circuit sensitivity greater than *about* 25 mV/Pa, as broadly claimed.

Regarding claim 51, Sprenkles teaches a noise level of less than *about* 30 dB SPL , as broadly claimed.

Regarding claim 52, Sprenkles teaches a total harmonic distortion of less than *about* 2% at 110 dB SPL at 650 Hz, as broadly claimed.

Regarding claim 53, In figure 2, Sprenkel teaches an electret transducer, comprising: a diaphragm including an IC-compatible membrane support structure (9) and a membrane layer formed on the membrane support by micro-machining techniques, the transducer diaphragm having a first electrode (1); a backplate (5) having a second electrode (in column 5, line 45, Sprenkles teaches that the motor portion of the backplate will comprise a bottom electrode) and formed by micro-machining techniques; an electret layer (4) formed on at least one of the diaphragm or backplate, the diaphragm being positioned adjacent to the backplate to form an electret transducer having an open-circuit sensitivity greater than *about* 25 mV/Pa (as broadly claimed), a noise level of less than *about* 30 dB SPL (as broadly claimed), and a total harmonic distortion of less than *about* 2% at 110 dB SPL at 650 Hz (as broadly claimed). In column 2, line 35-37 and column 6, lines 21-29, Sprenkles specifically teaches micro-machining techniques.

Regarding claim 54, Sprenkel teaches an open-circuit sensitivity greater than *about* 35 mV/Pa, as broadly claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne N Harvey whose telephone number is 703-305-1111. The examiner can normally be reached on 9-6:30 M-F and alternating Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dionne Harvey

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